

**COMMONWEALTH OF VIRGINIA**  
**Department of Environmental Quality**  
**Tidewater Regional Office**

**STATEMENT OF LEGAL AND FACTUAL BASIS**  
**Minor Permit Modification**

BASF Corporation  
Portsmouth, Virginia  
Permit Number: VA-60291  
Effective Date: March 27, 2006  
Expiration Date: August 29, 2008

As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, BASF Corporation has applied for a minor permit modification to the Title V Operating Permit for its polyacrylate plant, Portsmouth facility. The Department has reviewed the application and has prepared a modified Title V Operating Permit.

Engineer/Permit Contact:\_\_\_\_\_

Date: 01/26/06

Air Permit Manager:\_\_\_\_\_

Date: 01/30/06

Deputy Regional Director:\_\_\_\_\_

Date: 03/27/06

**Attachment A:** NSR permit dated August 9, 2005

## **REQUESTED MODIFICATION and REASON FOR MODIFICATION**

The main reason for the minor permit modification is for BASF Corporation's permit number TRO-60270 to incorporate the changes allowed in its amended NSR permit dated August 9, 2005 (Attachment A) into the original Title V operating permit dated August 29, 2003. The amended NSR permit adds a throughput limit for a Chemical T (Condition 8), and changes the equation for calculating VOC emissions from process line dryers (Condition 14) to take into account the VOC emissions from the chemical. The chemical name of Chemical T is confidential business information (CBI), but it is suffice to know that it is a non-HAP VOC additive that the facility wanted to start using. Chemical T may emit VOC via the process line dryers, however, there is no need to change in the combined VOC emission limits for the process line dryers (NSR Condition 10, and the original Title V Condition III.A.6). Although it is necessary to change the relevant calculation equation to include Chemical T (NSR Condition 14), the equation itself contains confidential business information, therefore, its content has to be kept separately in the Confidential Keys list for the NSR permit. As a result, the equivalent condition in the Title V permit (original Title V Condition III.A.8) undergoes no significant change (See new Title V Condition III.A.9).

As a side point, BASF Corporation has informed DEQ that it will close down the plant in 2007, and the closure process will begin in the fourth quarter of 2006. In any case, for reasons as discussed above, the facility has submitted an application for a Title V minor permit modification which was deemed complete on November 30, 2005. Consequently, the permit modification is being processed at this time.

## **APPLICABILITY OF 9 VAC 5-80-210**

Minor permit modification procedures can only be used for those permit modifications that:

1. Do not violate any applicable requirement:

The use of chemical T will not result in the violation of any applicable requirements. There are no permit limitations on specific non-HAP volatile organic compounds that the facility is allowed to use.

2. Do not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit such as a change to the method of monitoring to be used, a change to the method of demonstrating compliance or a relaxation of reporting or recordkeeping requirements:

There are no changes other than the added recordkeeping requirement for the usage of Chemical T. As the chemical is not a HAP, and it does not change any VOC emission limits in the permit, the requirement makes the permit more stringent, not relaxing recordkeeping requirements.

3. Do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis:

The modification does not change any of the above referenced determinations.

4. Does not seek to establish or change a permit term or condition for which there is no corresponding underlying applicable federal requirement and that the source has assumed to avoid an applicable federal requirement to which the source would otherwise be subject. Such terms and conditions include:
  - a. A federally enforceable emissions cap assumed to avoid classification as a Title I modification; and
  - b. An alternative emissions limit approved pursuant to regulations promulgated under §112(i)(5) of the federal Clean Air Act.

The facility does not seek to establish or change a permit term or condition to avoid classification as a Title I modification or the Clean Air Act §112(i)(5) regulations.

5. Are not Title I modifications:

The requested modification is not a Title I modification.

6. Are not required to be processed as a significant modification under 9 VAC 5-80-230 or as an administrative permit amendment under 9 VAC 5-80-200.

The requested modification does not qualify as an administrative permit amendment or a significant modification.

The requested modification meets all the requirements in items 1 to 5 above. It does not qualify as an administrative permit amendment or a significant modification as specified in item 6 above. Therefore, the modification can be processed using the minor permit modification procedures as defined in 9 VAC 5-80-210.

## CHANGES TO TITLE V OPERATING PERMIT

The original Title V permit dated August 29, 2003, is referred to as the “old” permit. The “old” conditions that have undergone changes beyond the number changes are discussed below.

**Condition I- Facility Information:** In the facility description, SIC code is replaced by NAICS according to the new DEQ boilerplate. Also, the newest NSR permit issuance date of August 9, 2005, replaces the previous one dated May 12, 2003.

**Condition III.A.5- Chemical T Throughput limit:** This is a new condition equivalent to Condition 8 of the 8/09/05 NSR. Note that there is a correction for the typographical error in the NSR; “the sum of each consecutive monthly period” has been replaced by “the sum of each consecutive 12-month period”.

**Conditions III.A.6, 7, and 8- Emission limits:** From old Conditions III.A.5, 6, and 7. All emission limits are unchanged, however, the language on compliance determination has been changed to the current boilerplate language as in the 8/09/05 NSR. This was requested by the DEQ inspector who thinks that the old language is unclear, and it is better to use the current boilerplate language that considers compliance to the operating limits (such as control device, throughput limit and recordkeeping) as credible evidence to compliance to emission limits.

**Condition III.A.9- Process Line Dryer VOC Emissions Calculations:** Old Condition III.A.8 was adjusted pursuant to Condition 14 of 8/09/05 NSR.

**Condition III.A.11- Requirements by Reference:** This is a new condition equivalent to Condition 17 of the 8/09/05 NSR to add requirements by reference of MACT Subpart FFFF which was promulgated on November 10, 2003, and has a compliance date of November 10, 2006. BASF Corporation has informed DEQ that it will close down the plant in 2007, and the closure process will begin in the fourth quarter of 2006. Therefore, a reference to the future applicability of the MACT is deemed sufficient at this time.

**Condition III.B.2- Stack Testing and Reporting of Acrylic Acid Emissions:** To mirror Condition 12 of the 8/09/05 NSR, minor language changes were made, and the first stack test requirement was removed as it had been completed. The 30-day notification requirement was also added at the request of DEQ inspector.

**Condition III.B.3- Emission Test Plan Preparation Requirements:** Pursuant to Condition 13 of 8/09/05 NSR, minor revision was necessary as the initial test plan requirement had been met.

**Condition III.C.3- Monitoring of Visible Emissions:** The monitoring requirements were unchanged but the necessary records were described more clearly.

**Condition III.C.7- On Site Records:** Addition of the Chemical T throughput records, and other minor changes in accordance with Condition 18 of 8/09/05 NSR.

**Condition VIII.A and B- HAP Emission Limits:** All emission limits are unchanged, however, the language on compliance determination has been changed to the current boilerplate language in the 8/09/05 NSR, as discussed in Conditions III.A.6, 7, and 8 above.

## **PUBLIC PARTICIPATION**

The public participation requirements of 9 VAC 5-80-270 do not apply to minor permit modifications. Therefore, a public notice is not required.

Under 9 VAC 5-80-210, affected states and EPA shall be notified of the minor permit modification request within five days of receipt of a complete application. The minor permit modification can not be issued until the EPA's 45-day review period has expired.

**COMMONWEALTH OF VIRGINIA**  
**Department of Environmental Quality**  
**Tidewater Regional Office**

**STATEMENT OF LEGAL AND FACTUAL BASIS**

BASF Corporation-Portsmouth Site  
Portsmouth, Virginia  
Permit No. VA-60291

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, BASF Corporation-Portsmouth Site has applied for a Title V Operating Permit for its SAM production facility. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

Engineer/Permit Contact:\_\_\_\_\_

Date:\_\_\_\_\_

Air Permit Manager:\_\_\_\_\_

Date:\_\_\_\_\_

Regional Director:\_\_\_\_\_

Date:\_\_\_\_\_

## **1. FACILITY INFORMATION**

### **Permittee**

BASF Corporation– Portsmouth Site  
3340 West Norfolk Road  
Portsmouth VA 23703

### **Facility**

BASF Corporation– Portsmouth Site  
3340 West Norfolk Road  
Portsmouth VA

**AFS ID No.** 51-740-00024

## **2. SOURCE DESCRIPTION**

SIC Codes: Division D:Manufacturing; Major Group 28: Chemicals And Allied Products; Industry Group 282: Plastics Materials And Synthetic Resins, Synthetic; 2821: Plastics Materials, Synthetic Resins, and Nonvulcanizable Elastomers. BASF Corporation- Portsmouth Site manufactures and packages, for bulk sale, sodium polyacrylate, a super absorbent material (SAM) sold to manufacturers of baby diapers and other products.

BASF Portsmouth consists of a Super Absorbent Materials (SAM) production plant, and supporting activities (laboratory and wastewater treatment). The lab received an NSR permit as an R&D facility, is not considered as part of this stationary source under 9 VAC 5-80-60 of the Commonwealth of Virginia's Regulations for the Control and Abatement of Air Pollution. An amines production plant, owned and operated by Celanese Chemical, is adjacent to the SAM Plant. The amines plant is a minor stationary air emissions source not subject to Title V permitting requirements. It was previously owned and operated by Clariant Corporation, which also owned the SAM Plant. Clariant Corporation had prepared and submitted the initial Title V applications for both plants because, being contiguous and co-owned, they were considered a single stationary source at that time for air permitting purposes under the Clean Air Act.

SAM Plant emission unit groups are (1) raw material storage and feed makeup, (2) production lines, and (3) packaging lines and solvent recycle system. Sodium polyacrylate powder is manufactured from acrylic acid and sodium hydroxide. Production lines comprise reactors, gel choppers, dryers, size reduction mills, screeners, and crude product silos. Each packaging line includes one or more fines screeners, a process called Process G for this permit, a final dryer, one or more blenders and final screeners, and bagging equipment. Acrylic acid received in rail cars is diluted with water during unloading, then stored in tanks. Storage tank emissions, and rail car unloading emissions, vent to a common scrubber. The acrylic acid solution is further diluted and transferred with process additives to acrylic acid feed tanks, which vent to a common stack.

Production line reactors receive solutions of raw materials, additives, and a catalyst. Following reaction, reactors are pressurized, and polymer gel is ejected. Filter receivers collect loose particulate from the process. Dryers reduce moisture in the polymer gel, and vent uncontrolled through roof mounted stacks. Solid particles are reduced in size by reduction mills and screeners controlled by baghouses, or collected in surge hoppers. Packaging line emissions are controlled by baghouses at most emission points. The facility is a Title V major source for acrylic acid emissions. It is located in a prevention of significant deterioration (PSD) attainment area for all pollutants, and is permitted under a minor NSR permit last amended on May 12, 2003.

### **3. EMISSION UNIT GROUPS**

Emissions units within the facility are grouped as follows:

<b>Emissions Unit ID</b>	<b>Stack ID</b>	<b>Emissions Unit Groups</b>	<b>Size/Rated Capacity*</b>	<b>Applicable Permit Date</b>
<b><u>Process A – Raw Materials Storage and Handling</u></b>				
		Raw Material Feed Tanks		05/12/03
		Raw Material Adjustment Tanks		05/12/03
		Raw Material Storage Tank A;		05/12/03
		Raw Material Storage Tank B		05/12/03
		Truck/Railcar Loadout, and Scrubber		05/12/03
		Polyol Tank.		05/12/03
<b><u>Process B – Process Lines</u></b>				
		Reactors		05/12/03
		Recycle Filter Receiver Baghouses		05/12/03
		Gel Chopper Vents without Baghouses;		05/12/03
		Dryer Vents		05/12/03
		Milling Area Vents		05/12/03
		Milling Filter Receivers		05/12/03
<b><u>Process C – Sifting, Treatment, and Packaging</u></b>				
		Pre Sifter Feeder Filter Receivers;		05/12/03
		Additive Tank		05/12/03
		Solvent Recycle		05/12/03
		Process G Operations		05/12/03
		Filter Receivers		05/12/03
		Process G Feeder		05/12/03
		Coolers		05/12/03
		Baggers		05/12/03
		Rework Station		05/12/03
		Blender		05/12/03



Emissions Unit ID	Stack ID	Emissions Unit Groups	Size/Rated Capacity*	Applicable Permit Date
		Silo/Blenders		05/12/03
		Post Sifter Feeder Filter Receivers		05/12/03
		Condensate Tank		05/12/03
		Cooler Exhausts		05/12/03

\* Individual emission points and associated control devices are outlined in Title V Conditions III.A.1 and III.A.2. Pollutants and hourly and annual emission rates from each process emission point are specified in Conditions III.A.5, III.A.6, and III.A.7. Individual process rates were determined by DEQ to be treatable as confidential, at the source's request, and so are not defined in the table.

#### **4. EMISSIONS INVENTORY**

Emissions are summarized in the following tables.

2001 Actual Emissions

Emissions Unit Group	Criteria Pollutant Emission in Tons/Year			
	VOC	SO <sub>2</sub>	PM <sub>10</sub>	Total
Point Sources	34.79	49.57	49.57	133.9
Fugitive Emissions	Negl.			Negl.
Total	34.79	49.57	49.57	

2001 Facility Hazardous Air Pollutant Emissions

Pollutant	Hazardous Air Pollutant Emission in Tons/Year
Acrylic Acid*	3.82

\* Part of Total VOC in previous table

## **5. COMPLIANCE STATUS**

BASF is inspected periodically. Its last on-site inspection was conducted by the Department of Environmental Quality on August 24, 2001. A full compliance evaluation of this facility, which included the site visit, was conducted. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, are evaluated for compliance. Based on these compliance evaluations, the facility has not been found to be in violation of any state or federal applicable requirements at this time.

## **6. EMISSIONS UNIT APPLICABLE REQUIREMENTS (SAM Process Emissions Units)**

### **Limitations (SAM Process Emissions Units)**

- A. The NSR permit last amended on May 12, 2003, contains the following emissions-specific requirements for SAM process emissions unit limitations:
1. NSR Condition 3, as specified in Title V Condition III.A.1, requires PM control by baghouses with 99.9 percent control efficiency.
  2. NSR Condition 4, as specified in Title V Condition III.A.2, requires VOC control for raw material storage tanks and truck/railcar loadout operations by scrubber with 95 percent control efficiency specified as BACT in a previous NSR.
  3. NSR Condition 6, as specified in Title V Condition III.A.3, limits annual polyacrylate production.
  4. NSR Condition 7, as specified in Title V Condition III.A.4, limits Chemical F minimum monthly average consumption, and maximum daily usage.
  5. NSR Condition 8, as specified in Title V Condition III.A.5, lists predicted emissions for raw materials storage and handling within the SAM production processes.
  6. NSR Condition 9, as specified in Title V Condition III.A.6, lists predicted process line emissions.
  7. NSR Condition 10, as specified in Title V Condition III.A.7, lists predicted sifting, treatment, and packaging emissions.
  8. NSR Condition 13, as specified in Title V Condition III.A.8, specifies the formula to calculate process line VOC emissions.

9. NSR Condition 15, as specified in Title V Condition III.A.9, requires that visible emissions from baghouse stacks, from uncontrolled process vents, and from the scrubber, not exceed 5% opacity, except during one 6-minute period in any one hour in which visible emissions shall not exceed 20% opacity, as determined by EPA Method 9.

B. The following Virginia Administrative Codes with emissions-specific requirements have been determined to be applicable to the SAM process limitations:

? 9 VAC 5-50-80 visible emissions standards are specified in Title V Condition III.A.9.

? 9 VAC 5-50-260 emissions standards for new and modified emission units are specified in Title V Conditions III.A.5, III.A.6, and III.A.7.

#### **Testing (SAM Process Emissions Units)**

A. The 05/12/03 NSR permit contains the following emissions-specific testing requirements:

? NSR Condition 5 requirements for test ports on specified SAM process emissions equipment are specified in Title V Condition III.B.1.

? NSR Condition 11 specific acrylic acid stack testing and reporting requirements for SAM process emissions equipment are specified in Title V Condition III.B.2.

? NSR Condition 12 specific acrylic acid stack test plan preparation requirements for SAM process emissions equipment are specified in Title V Condition III.B.3.

B. The following Virginia Administrative Code citations with emissions-specific testing requirements have been determined to be applicable to SAM process units:

? 9 VAC 5-50-20 is the basis for specifying, in Title V Condition III.B.2, that VEE's shall be conducted on a specified schedule, that tests be conducted in accordance with 40 CFR, Part 60, Appendix A, Method 9, and that other specified requirements be met.

? 9 VAC 5-50-80 visible emissions requirements are specified in Title V Condition III.A.9.

? 9 VAC 5-80-110 is invoked in Title V Conditions III.B.2 and III.B.3 to specify the required timing for the first set of VEEs and emissions testing, and in Title V Condition III.B.4 to clarify compliance test methods for other pollutants, should such testing be directed.

**Periodic Monitoring (SAM Process Emissions Units)**

- A. The NSR permit dated 05/12/03, contains the following emissions-specific monitoring requirements for SAM plant periodic monitoring:
- ? NSR Condition 3, as specified in Title V Condition III.C.1, requires reliable monitoring of differential pressure drop through baghouses to ensure proper operation.
  - ? NSR Condition 4, as specified in Title V Condition III.C.2, specifies monitoring of liquid flow rates with alarms, and of differential pressure drop to ensure proper scrubber operation.
  - ? NSR Condition 5, as specified in Title V Condition III.B.1, requires test ports for the scrubber and dryer vents, and upon request, at baghouse exhausts.
  - ? NSR Condition 16 specifies recordkeeping requirements in Title V Condition III.C.7.
  - ? NSR Condition 17, as specified in Title V General Condition VII.Q, addresses right of entry.
  - ? NSR Condition 18, as specified in Title V General Condition VII.F, addresses failure/malfunction reporting requirements.
  - ? NSR Condition 21, as specified in Title V Condition III.C.4, requires the source to minimize the duration and frequency of excess emissions due to malfunctions of process equipment, or air pollution control equipment. The permittee is directed to develop a maintenance schedule, maintain records of maintenance and an inventory of spare parts, have available written operating procedures for air pollution control equipment, train control equipment operators to properly operate equipment, and maintain training records.
- B. The following Virginia Administrative Code citations with emissions-specific requirements have been determined to be applicable to SAM plant periodic monitoring:
- ? 9 VAC 5-50-110, as invoked in Title V Condition III.C.3, specifies the periodic monitoring of dryer opacity, and opacity from other process vents, to assure compliance with Title V Condition III.A.9. The source will be perform weekly visual observations of dryer vents, and other specified vents or groups of vents. If opacity is indicated, the condition will be corrected, or a Method 9 visible emissions evaluation (VEE) will be performed.
  - ? 9 VAC 5-80-110 is invoked in Title V Conditions III.C.5 and III.C.6 to clarify that exceedances of performance thresholds are not by themselves violations (III.C.5), and require records of all exceedances of performance thresholds, and corrective actions (III.C.6).

Compliance assurance is proposed as recordkeeping of specified process parameters and actions upon exceedances of specified parametric thresholds for those process rates. No periodic monitoring for criteria pollutant emission limits is required in the permit. The following demonstration is provided to show there is not a great likelihood emissions limits will be exceeded.

**Recordkeeping (SAM Process Emissions Units)**

A. The 05/12/03 NSR permit contains the following emissions-specific recordkeeping requirements:

? NSR Condition 16 recordkeeping requirements for SAM process emissions equipment are specified in Title V Condition III.C.7.

B. The following Virginia Administrative Code citations with emissions-specific recordkeeping requirements have been determined to be applicable to SAM process units:

? 9 VAC 5-50-50 recordkeeping requirements are specified in Title V Condition III.C.7.

The following is a demonstration that exceedances of emission limits in Title V Conditions III.A.5, III.A.6, and III.A.7 are unlikely at the facility's permitted production rate:

**ACRYLIC ACID EMISSION FACTORS/HOURLY UNCONTROLLED EMISSIONS:**

**Dryer Emission Factors:** (Condition 27 of 05/12/03 NSR permit)

As documented in 1992 and 1994 permit modification applications, calculations for acrylic acid emissions from dryer vents used a correlation table of residual monomer (measured acrylic acid PPM) contained in the final product versus the measured hourly acrylic acid from dryer vents. The polyacrylate production process employs the use of Chemical F to meet acrylic acid emission limits for production rates up to the current production limit.

The latest NSR analysis determined, using a refined modeling analysis submitted with the latest NSR application, that acrylic acid emissions at the maximum permitted hourly and annual rates resulted in hourly and annual predicted ambient air concentrations (PAACs) of acrylic acid below significant ambient air concentrations (SAACs). For NSR modeling, conservative maximum predicted hourly emission rates 26% higher than average hourly capacities were used to ensure impacts are acceptable under all operating conditions. Annual emission limits are based on the current annual polyacrylate production limit.

**Acrylic Acid Unloading System - Emission Factors:** 4.6 lb/hr (Condition 26 of 05/12/03 NSR permit) Basis: Emission factors for two storage tanks and rail car venting were developed in a previous NSR, and were unchanged for the 5/10/99 and 05/12/03 NSR modifications. Emissions vent to a 95% efficient scrubber.

**Tanks and Reactors - Emission Factors:**

**(Acrylic Acid Raw Material Feed Tanks)** 0.24 lb/hr (Condition 26 of 05/12/03 NSR permit, and a state-only requirement in Title V Condition VIII.A).

Basis: Calculations were provided in the application for the 5/10/99 NSR permit. A November, 1994, stack test determined the hourly total acrylic acid loss rate at the maximum permitted production rate at that time.

**HOURLY ACRYLIC ACID EMISSIONS, UNCONTROLLED - TOTAL**

**Dryers:** Max hourly emission rate, based on stack tests/NSR calculations = 10.0 lb/hr.

**Acrylic acid unloading system:** 4.6 lb/hr (0.23/0.05)(Condition 26 of 05/12/03 NSR permit, and a state-only requirement in Title V Condition VIII.A).

**Tanks and reactors:** 2.6 lb/hr (Conditions 26 and 27 of 05/12/03 NSR permit, and state-only requirements in Title V Conditions VIII.A and VIII.B).

Total  $10.0 + 4.6 + 2.6 = 17.2$  lb acrylic acid/hr, uncontrolled.

**PREDICTED ANNUAL ACRYLIC ACID EMISSIONS:**

**Raw Materials Storage and Handling.** Predicted raw material feed tanks (combined) = 1.04 tons/yr, based on 5/10/99 NSR calculations. Predicted scrubber vent emission rates are 0.15 tons/yr, based on 5/10/99 NSR calculations based on the number of rail cars unloaded, which in turn correlated to the maximum requested annual polyacrylate production rate for the SAM plant. Total maximum acrylic acid emissions from raw materials storage and handling are calculated as 1.20 tons/yr (Condition 26 of 05/12/03 NSR permit, and a state-only requirement in Title V Condition VIII.A).

**Dryers-** (Condition 27 of 05/12/03 NSR permit)

Basis: A 5/26/92 NSR modification used a correlation table of acrylic acid residual monomer PPM measured in the final product, versus tested hourly acrylic acid emissions. In the 1994 modification, 10% was added to the correlation value, for an annual emission rate of 46.2 tons/yr. The annual limit was reduced in the 1994 modification to 25.2 tn/yr, because the use of **Chemical F** made the reaction process more efficient. For the 1999 debottlenecking production increase, the dryers limit was set at 34.8 tons acrylic acid/yr.

Current NSR limits for process line dryers emissions are 14.0 lb acrylic acid/hr and 35.6 tn/yr (Condition 27 of 05/12/03 NSR permit, and state-only requirements in Title V Condition VIII.B).

### **PREDICTED VOC EMISSION RATES**

Maximum VOC from SAM process lines is the sum of potential acrylic acid, acetic acid, and propionic acid emissions, 88.5 tons/yr (Condition 9 of 05/12/03 NSR permit, and Title V Condition III.A.6).

### **SO<sub>2</sub> EMISSION FACTORS AND UNCONTROLLED EMISSION RATES-**

Process line dryers are the only source of SO<sub>2</sub> emissions.

Basis for the SO<sub>2</sub> emission factor: Figure 1 of 10/21/91 Hoechst Celanese Corporation letter. An assumption of 20.6 total lb/hr from process lines is based on a graph of extrapolated test data provided by the source in 1991, adjusted for the current maximum permitted production rate. The recent NSR revised predicted maximum hourly emission rates from 16.3 to 20.6 lb/hr to reflect a 26% higher instantaneous production capacity over the average maximum production rate.

### **SULFUR DIOXIDE Emission Rates-**

Calculated in NSR as 20.6 lb/hr, and 71.4 tons/yr SO<sub>2</sub> (Condition 9 of 05/12/03 NSR permit, and Title V Condition III.A.6).

### **PM AND PM<sub>10</sub> EMISSION FACTORS AND UNCONTROLLED EMISSION RATES:**

**Dryers:** (Condition 9 of 05/12/03 NSR permit, and Title V Condition III.A.6).

Hourly analyses from previous NSR calculations are revised to reflect 26% higher maximum instantaneous dryer line capacity, and the current annual production limit.

### **PREDICTED PM AND PM<sub>10</sub> EMISSIONS: (8760 hr/yr, no control)**

#### **PM or PM<sub>10</sub> – Dryers:**

Based on NSR calculations for the combined emissions from all process line vents: 15.1 lb/hr, 52.2 tons/yr (Condition 9 of 05/12/03 NSR permit, and Title V Cond III.A.6).

#### **Gel Choppers:**

Emission factors/vent: No change from the previous NSR calculation.

Basis: Sep 93 stack test results. Two vents (static and dynamic) for each gel chopper.

Extended test results for all process lines: 0.03 (dynamic) + 0.33 (static)= 0.36 lb/hr and 1.6 tn/yr (Condition 9 of 05/12/03 NSR permit, and Title V Condition III.A.6).

#### **Other PM Vents in Process Lines Group:**

All hourly emission rates are calculated based on an a required maximum particulate matter loading at any exhaust vent of 5 grains per dry standard cubic foot (gr/dscf), at each vent's maximum measured air flow rate. An operating rate of 8760 hr/yr is assumed as worst case. Emission vent point air flow capacities were provided by the source.

Sample of hourly and annual emission rate calculations:

**Fines recycle filter receivers:**

(Condition 9 of 05/12/03 NSR permit, and Title V Condition III.A.6)

Example emission factor for one vent: 13.6 lb/hr, and 57 tons/yr.

Basis: 265 scfm maximum air flow (measured by source).

$265 \text{ scfm} \times 60 \text{ min/hr} \times 5 \text{ gr/std ft}^3 \times 1 \text{ lb/7000 gr} \times 1.2 \text{ safety factor} = 13.6 \text{ lb/hr.}$

Predicted maximum emission rate (at 99.9% control) = 0.02 lb/hr, and 0.1 tons/yr.

Non-dryer process line vent annual emission limits total 10.4 tn/yr, based on this calculation method (Condition 9 of 05/12/03 NSR permit, and Title V Condition III.A.6).

**Other PM (from Sifting, Treatment and Packaging vents):** Sifting, Treatment and Packaging vents total 6.5 tn PM/yr, calculated similarly to the method for process line vents (Condition 10 of 05/12/03 NSR permit, and Title V Condition III.A.7).

Based on the demonstration above, it appears there is not a great likelihood that emissions limits for SAM processes specified in Title V Conditions III.A.5, III.A.6, and III.A.7 will be exceeded, and no additional periodic monitoring of emissions other than opacity is specified.

**Streamlining of Applicable Requirements (SAM Process Emissions Units)**

? NSR Condition 1: Dates of submission of applications and supporting information related to the processing of, and basis for, NSR permits are not required in the Title V permit.

**8. FACILITY WIDE APPLICABLE REQUIREMENTS**

**Limitations (Facility Wide)**

- A. The 05/12/03 NSR permit contains the following emissions-specific facility wide requirements:
- ? NSR Condition 14, as specified in Title V Condition IV.A.1, specifies a facility VOC emissions limit, determined monthly, of 94 tons per year, requested by the source for this NSR to create a synthetic minor source of VOC emissions.
  - ? NSR Condition 17 inspection and entry requirements are in Title V General Condition VII.Q.
  - ? NSR Condition 18 proper operation requirements are in Title V General Condition VII.F.
  - ? NSR Condition 19, as specified in Title V Condition IV.A.2, specifies actions required for facility or control equipment malfunctions associated with HAPs.
  - ? NSR Condition 20, as specified in Title V Condition IV.A.3, specifies actions required if DEQ requests that the level of operations be reduced.
  - ? NSR Condition 21, as specified in Title V Condition III.C.4, specifies maintenance and operationing procedures to minimize excess emissions.



- ? NSR Condition 22, requirements for permit suspension and revocation procedures are specified in Title V General Condition VII.V.
  - ? NSR Condition 23 permit transfer requirements are specified in Title V General Condition VII.T.
  - ? NSR Condition 24 registration update requirements are in Title V General Condition VII.L.
  - ? NSR Condition 25 requirements for an on-site permit are in Title V General Condition VII.S.
- B. The following Virginia Administrative Code citations with emissions-specific facility wide requirements have been determined to be applicable:
- ? 9 VAC 5-20-160 registration requirements are addressed in NSR Condition 24 and Title V General Condition VII.L.
  - ? 9 VAC 5-20-180 failure and malfunction requirements are addressed in NSR Conditions 19 and 20, and Title V Conditions IV.A.2 and IV.A.3.
  - ? 9 VAC 5-40-90 fugitive dust requirements are addressed in General Condition VII.N.
  - ? 9 VAC 5-40-140 odor requirements are state-only requirements in Title V Condition VIII.C.
  - ? 9 VAC 5-40-160..230 toxics emissions requirements are state-only requirements in Title V Condition VIII.E.
  - ? 9 VAC 5-50-20 compliance requirements are addressed in Title V Condition III.B.2.
  - ? 9 VAC 5-50-30F requirements for test ports are addressed in NSR Condition 5 and Title V Condition III.B.1.
  - ? 9 VAC 5-50-50 recordkeeping requirements are specified in Title V Condition V.C.1.
  - ? 9 VAC 5-50-80 VEE standards for new sources are addressed in Title V Condition III.A.9.
  - ? 9 VAC 5-50-90 fugitive dust requirements are in Title V General Condition VII.N.
  - ? 9 VAC 5-50-140 odor requirements are state-only requirements in Title V Condition VIII.D.
- C. The following citations from Code of Federal Regulations have facility wide applicability:
- ? 40 CFR 61 Asbestos Demolition and Renovation requirements are specified by Title V General Condition VII.Y.
  - ? 40 CFR 68 requirements for Accidental Release Prevention are specified by Title V General Condition VII.Z.
  - ? 40 CFR 82 requirements for Stratospheric Ozone Protection are specified by Title V General Condition VII.X.

**Periodic Monitoring and Recordkeeping (Facility Wide)**

The following Virginia Administrative Code citation with emissions-specific recordkeeping requirements has been determined to have facility wide applicability:

- ? 9 VAC 5-50-50 requirements for general recordkeeping by the facility are specified in NSR Condition 16, which is the basis for Title V Condition IV.B.1.

**Streamlining of Applicable Requirements (SAM Process Emissions Units)** None.

**9. GENERAL CONDITIONS**

This Title V permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 that apply to all Federal operating permit sources. These include requirements for submitting semiannual monitoring reports, and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

**Comments on General Conditions**

**B. Permit Expiration**

This condition refers to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by ' 2.1-20.01:2 and ' 10.1-1185 of the *Code of Virginia*, and the "Department of Environmental Quality Agency Policy Statement No. 3-2001".

This general condition cites the entire Article that follows:

Article 1 (9 VAC 5-80-50 et seq.), Part II of 9 VAC 5 Chapter 80. Federal Operating Permits for Stationary Sources

This general condition cites the sections that follow:

9 VAC 5-80-80. Application

9 VAC 5-80-140. Permit Shield

9 VAC 5-80-150. Action on Permit Applications

**F. Failure/Malfunction Reporting**

Section 9 VAC 5-20-180 requires malfunction and excess emissions reporting within four hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to 9 VAC 5-20-180 including Title V facilities. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four daytime business hours after discovery of the malfunction.

## **J. Permit Modification**

This general condition cites the sections that follow:

9 VAC 5-80-50. Applicability, Federal Operating Permit For Stationary Sources  
9 VAC 5-80-190. Changes to Permits.  
9 VAC 5-80-260. Enforcement.  
9 VAC 5-80-1100. Applicability, Permits For New and Modified Stationary Sources  
9 VAC 5-80-1790. Applicability, Permits For Major Stationary Sources and Modifications  
Locating in Prevention of Significant Deterioration Areas  
9 VAC 5-80-2000. Applicability, Permits for Major Stationary Sources and Major Modifications  
Locating in Nonattainment Areas

## **U. Malfunction as an Affirmative Defense**

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Condition U and General Condition F. For further explanation see the comments on General Condition F.

This general condition cites the sections that follow:

9 VAC 5-20-180. Facility and Control Equipment Maintenance or Malfunction  
9 VAC 5-80-110. Permit Content

## **Y. Asbestos Requirements**

The Virginia Department of Labor and Industry under Section 40.1-51.20 of the Code of Virginia also holds authority to enforce 40 CFR 61 Subpart M, National Emission Standards for Asbestos.

This general condition contains citations from the Code of Federal Regulations that follow:

40 CFR 61.145, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to demolition and renovation.  
40 CFR 61.148, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to insulating materials.  
40 CFR 61.150, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to waste disposal.

This general condition cites the regulatory sections that follow:

9 VAC 5-60-70. Designated Emissions Standards  
9 VAC 5-80-110. Permit Content

## **10. STATE-ONLY APPLICABLE REQUIREMENTS**

The following Virginia Administrative Code citations have emissions-specific requirements only enforceable by the State:

- ? 9 VAC 5-60-220 in Chapter 60, Part II, Article 4 on Toxic Pollutant Standards for Existing Sources (Rule 6-4)
- ? 9 VAC 5-60-320 in Chapter 60, Part II, Article 5 on Toxic Pollutant Standards for New and Modified Sources (Rule 6-5)
- ? 9 VAC 5 Chapter 40, Part II, Article 2: Emission Standards for Odor (Rule 4-2)
- ? 9 VAC 5 Chapter 50, Part II, Art. 2: Stds of Performance for Odorous Emissions (Rule 5-2)

## **11. FUTURE APPLICABLE REQUIREMENTS**

The Miscellaneous Organic NESHAP (MON) MACT is a future applicable requirement. Promulgation of these MACT standards is anticipated during the second half of 2003, having been in draft since April 4, 2002. Compliance with those standards will likely be required by the fall of 2006.

## **12. INAPPLICABLE REQUIREMENTS**

Compliance with provisions of this permit shall be deemed compliance with all applicable requirements in effect as of the permit issuance date as identified in this permit. This permit shield covers only those applicable requirements covered by terms and conditions in this permit, and the following requirements which have been specifically identified as being not applicable to this permitted facility:

<b>Citation</b>	<b>Title of Citation</b>	<b>Applicability Description</b>
40 CFR Part 60, Subpart Kb	Performance Standards for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced after July 23, 1984	This requirement does not apply to any of the tanks listed as insignificant. The tanks are either smaller in size than 10,000 gallons, or were installed prior to the applicability date of July 23, 1984.
40 CFR Part 60, Subpart JJ	NSPS for Cold Cleaning Operations having a Solvent-Air Interface Area Greater than or Equal to 19 Square Feet	Cold solvent metal cleaning sinks have solvent-air interfaces less than 19 sq. ft.
9 VAC 5-40, Article 25	Emission Standards for VOC Storage and Transfer Operations	VOCs stored in all tanks have vapor pressures below the 1.5 psia applicability threshold for this article.

### **13. INSIGNIFICANT EMISSIONS UNITS**

- A. The following emissions units at the facility are identified in the application as insignificant emission units under 9 VAC 5-80-720A:

<b>Emissions Unit Description</b>	<b>Citation</b>
Laboratory vents	9 VAC 5-80-720A, ref no. 18
Architectural maintenance, repainting and sandblasting	9 VAC 5-80-720A, ref no. 7
Miscellaneous comfort air conditioners and vent systems	9 VAC 5-80-720A, ref no's. 2, and 9
Office activities (printers, copiers, etc.)	9 VAC 5-80-720A, ref no's 5,10
Interior maintenance (use of janitorial cleaning products)	9 VAC 5-80-720A, ref no. 6

These emissions units are presumed to be in compliance with all requirements of the federal Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping, or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

B. The following emissions units at the facility are identified in the application as insignificant emission units under 9 VAC 5-80-720 B and 9 VAC 5-80-720 C:

<b>Emissions Unit No.</b>	<b>Emissions Unit Description</b>	<b>Citation</b>	<b>Pollutant(s) Emitted (9 VAC 5-80-720 B)</b>	<b>Rated Capacity (9 VAC 5-80-720 C)</b>
TA-1643	Tank 1	9 VAC 5-80-720 B	VOC emissions < 5 tn/yr	
TA-1644	Tank 2	”	VOC emissions < 5 tn/yr	
TA-1698	Tank 3	”	VOC emissions < 5 tn/yr	
TA-1699	Tank 4	”	VOC emissions < 5 tn/yr	
TA-1601	Tank 5	”	VOC emissions < 5 tn/yr	
TA-1680	Tank 6	”	VOC emissions < 5 tn/yr	
TA-1977	Tank 7	”	VOC emissions < 5 tn/yr	
TA-2052	Tank 8	”	VOC emissions < 5 tn/yr	
TA-1576-78	Tank 9-11	”	VOC emissions < 5 tn/yr	
TA-1588	Tank 12	”	VOC emissions < 5 tn/yr	
TA-1590	Tank 13	”	VOC emissions < 5 tn/yr	
TA-1591-95	Tank 14-18	”	VOC emissions < 5 tn/yr	
TA-1599	Tank 19	”	VOC emissions < 5 tn/yr	
TA-1600	Tank 20	”	VOC emissions < 5 tn/yr	
TA-1628	Tank 21	”	VOC emissions < 5 tn/yr	
TA-1645	Tank 22	”	VOC emissions < 5 tn/yr	
TA-1646	Tank 23	”	VOC emissions < 5 tn/yr	
TA-1671	Tank 24	”	VOC emissions < 5 tn/yr	
TA-1672	Tank 25	”	VOC emissions < 5 tn/yr	
TA-1682	Tank 26	”	VOC emissions < 5 tn/yr	
TA-1685	Tank 27	”	VOC emissions < 5 tn/yr	
TA-1692	Tank 28	”	VOC emissions < 5 tn/yr	
TA-1707	Tank 29	”	VOC emissions < 5 tn/yr	
TA-1835	Tank 30	”	VOC emissions < 5 tn/yr	
TA-1836	Tank 31	”	VOC emissions < 5 tn/yr	
TA-1854-56	Tank 32-34	”	VOC emissions < 5 tn/yr	
TA-1875	Tank 35	”	VOC emissions < 5 tn/yr	
TA-1876	Tank 36	”	VOC emissions < 5 tn/yr	
TA-1960	Tank 37	”	VOC emissions < 5 tn/yr	
TA-1974	Tank 38	”	VOC emissions < 5 tn/yr	
TA-1975	Tank 39	”	VOC emissions < 5 tn/yr	
TA-1979	Tank 40	”	VOC emissions < 5 tn/yr	
TA-1982	Tank 41	”	VOC emissions < 5 tn/yr	

<b>Emissions Unit No.</b>	<b>Emissions Unit Description</b>	<b>Citation</b>	<b>Pollutant(s) Emitted (9 VAC 5-80-720 B)</b>	<b>Rated Capacity (9 VAC 5-80-720 C)</b>
TA-1984-86	Tank 42-44	”	VOC emissions < 5 tn/yr	
TA-2025	Tank 45	”	VOC emissions < 5 tn/yr	
TA-2060	Tank 46	”	VOC emissions < 5 tn/yr	
TA-2068-70	Tank 47-49	”	VOC emissions < 5 tn/yr	
TA-2077	Tank 50	”	VOC emissions < 5 tn/yr	
TA-2085	Tank 51	”	VOC emissions < 5 tn/yr	
TA-2092	Tank 52	”	VOC emissions < 5 tn/yr	
TA-2112	Tank 53	”	VOC emissions < 5 tn/yr	
Ref # 105		”	VOC emissions < 5 tn/yr	
Ref # 106		”	VOC emissions < 5 tn/yr	
	Wastewater Treatment	”	VOC emissions < 5 tn/yr	

These emissions units are presumed to be in compliance with all requirements of the federal Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping, or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

#### **14. CONFIDENTIAL INFORMATION**

The source submitted an updated “Showing” letter, dated and received on March 6, 2003, and an updated “Confidential Business Information Claim”, dated and received on March 11, 2003, together defining six areas of confidentiality and updating previously submitted information dated and received May 11, 1998. DEQ concurred with those showings and claims in DEQ letters dated May 21, 1998, and March 27, 2003.

#### **15. PUBLIC PARTICIPATION**

The draft permit was placed on public notice, with an ad in the Virginian Pilot, for a 30-day comment period, from July 14, 2003 to August 13, 2003, with a concurrent 45-day review from July 14, 2003, to August 28, 2003, as a proposed permit, by EPA Region III. No comments were received during the 30-day comment period for the draft permit, or from EPA Region III concerning the proposed permit.